

Recovery Plan Action Status

Plan Name: Recovery Plan for Coastal Plants of the Northern San Francisco Peninsula

Plan Status: Final

Plan Date: 06-Oct-03

Lead Agency: USFWS

Lead Office: Sacramento Fish And Wildlife Office

(916)

414-6600)

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	1	B 1.1	Control nonnative vegetation at the Presidio World War II Memorial Raven's manzanita site	Partially Complete	FY 1995 - FY 1999		Golden Gate National Recreation Area, Presidio Trust	Management: Habitat Maintenance and Manipulation	Species Expert	
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	2	B 1.2	Monitor growth, reproduction, and clone size of Raven's manzanita at the World War II memorial manzanita site.	Discontinued	FY 1995 - FY 1999		Golden Gate National Recreation Area, Presidio Trust	Research: Other Information	Internal Technical Assistance	Decision was made that annual measurement of growth on Mother plant was not helpful, so now only qualitative assessments done by NPS.
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	1	B 1.3	Manage native vegetation around War Memorial Raven's manzanita site.	Partially Complete	FY 1995 - FY 1999		Golden Gate National Recreation Area, Presidio Trust	Management	Species Expert	
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	2	B 2.1	Monitor growth and clone size of established Raven's manzanita transplants in the Presidio.	Partially Complete	FY 1995 - FY 1999		Golden Gate National Recreation Area, Presidio Trust	Management: General	Species Expert	17 clones thought to still exist. It is no longer possible to distinguish individual clones without damaging them due to the expansion of the plants and intermingling of the branches. Since no significant dieback has occurred as of 2008, it can be inferred that the number of clones has not changed per NPS.
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	1	B 2.2	Control nonnative vegetation at Presidio transplant sites of Raven's manzanita.	Partially Complete	FY 1995 - FY 1999		Golden Gate National Recreation Area, Presidio Trust	Management	Species Expert	

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	2	B 2.3	Survey and select additional serpentine outcrop sites within the Presidio for reintroduction of Raven's manzanita.	Unknown			U.S. Fish and Wildlife Service, Golden Gate National Recreation Area, Presidio Trust, California Department of Fish and Game	Management: Reintroduction	Species Expert	A management plan for the Raven's manzanita on the Presidio was written in 2010 which contains updated management recommendations.
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	2	B 2.4	Prepare sites selected for transplantation of Raven's manzanita in the Presidio.	Unknown			U.S. Fish and Wildlife Service, Golden Gate National Recreation Area, Presidio Trust, California Department of Fish and Game	Management: Reintroduction	Species Expert	
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	2	B 2.5	Transplant replicated clones of Raven's manzanita to selected sites in the Presidio.	Partially Complete	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, Golden Gate National Recreation Area, Presidio Trust, California Department of Fish and Game	Management: Reintroduction	Internal Field Assistance	8 clones were transplanted near the mother plant in 1987, and 2 in 1988. As of 2008, 9 of these plants still exist. An additional 8 planted clones persist in other areas on the Presidio for a total of 17 clones.
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	2	B 2.6	Monitor transplanted Presidio clones.	Ongoing Current	FY 2007		U.S. Fish and Wildlife Service, Golden Gate National Recreation Area, Presidio Trust, California Department of Fish and Game	Management	Internal Field Assistance	Clones are monitored annually. It is no longer possible to count individual clones without damaging the plants due to their expansion and co-mingling of branches.
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	2	B 2.7	Identify and protect known and potential serpentine outcrop sites in the Presidio.	Not Started			Private Consultant/Contractor [San Francisco Presidio management], Golden Gate National Recreation Area, Presidio Trust	Management: Reintroduction	Contract	

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	2	B 2.8	Reintroduce associated serpentine plant species to serpentine outcrop sites in the Presidio.	Ongoing Current			Local conservation/horticultural organizations [San Francisco Presidio], City of San Francisco Department of Parks and Recreation, Golden Gate National Recreation Area, Presidio Trust	Management: Habitat Maintenance and Manipulation	Contract	
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	2	B 3.1	Evaluate and select candidate reserves for reintroduced Raven's manzanita outside the Presidio in San Francisco.	Not Started			Local conservation/horticultural organizations [San Francisco Presidio], City of San Francisco Department of Parks and Recreation, U.S. Fish and Wildlife Service, California Department of Fish and Game, Private landowners	Management: Reintroduction	Contract	
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	2	B 3.2	Acquire selected Raven's manzanita reserves outside the Presidio in San Francisco	Unknown			Local conservation/horticultural organizations [San Francisco Presidio], City of San Francisco Department of Parks and Recreation, U.S. Fish and Wildlife Service, California Department of Fish and Game, Private landowners	Acquisition: Easement	Contract	

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	2	B 3.3	Prepare restoration and reintroduction plans for Raven's manzanita reserves outside the Presidio in San Francisco	Not Started			Private Consultant/Contractor [San Francisco Presidio management], Local conservation/horticultural organizations [San Francisco Presidio], City of San Francisco Department of Parks and Recreation, U.S. Fish and Wildlife Service, California Department of Fish and Game, Universities	Management: Reintroduction	Contract	
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	2	B 3.4	Propagate native manzanita stock from seed.	Partially Complete	FY 2007		Local conservation/horticultural organizations [San Francisco Presidio], U.S. Fish and Wildlife Service, California Department of Fish and Game, Universities	Management: Propagation	Internal Field Assistance	Kirra Swenerton at Presidio nursery collected seed in 2007 from mother plant. Five plants at UC Berkeley Botanic Garden came from seed from mother plant and from seed from open pollination at the Bot Garden.
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	2	B 3.5	Prepare new San Francisco sites for reintroduction of native manzanitas.	Not Started			Private Consultant/Contractor [San Francisco Presidio management], Local conservation/horticultural organizations [San Francisco Presidio], City of San Francisco Department of Parks and Recreation, U.S. Fish and Wildlife Service, California Department of Fish and Game	Management: Reintroduction	Contract	

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	2	B 3.6	Transplant and establish propagated native founder manzanita populations	Not Started			Private Consultant/Contractor [San Francisco Presidio management], Local conservation/horticultural organizations [San Francisco Presidio], City of San Francisco Department of Parks and Recreation, U.S. Fish and Wildlife Service, California Department of Fish and Game	Management: Reintroduction	Contract	
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	3	B 3.7	Monitor transplants of Raven's manzanita in San Francisco outside the Presidio.	Not Started			Private Consultant/Contractor [San Francisco Presidio management], Local conservation/horticultural organizations [San Francisco Presidio], U.S. Fish and Wildlife Service, California Department of Fish and Game, Universities	Management	Contract	
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	2	B 4.1	Promote native manzanita recovery through information and outreach efforts	Not Started			Local conservation/horticultural organizations [San Francisco Presidio], City of San Francisco Department of Parks and Recreation, U.S. Fish and Wildlife Service, Golden Gate National Recreation Area, California Department of Fish and Game, Universities	Other: Information and Education	Contract	

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	2	B 4.2	Promote native manzanita recovery at the local community level.	Ongoing Current	Prior to FY 1995		Local conservation/horticultural organizations [San Francisco Presidio], City of San Francisco Department of Parks and Recreation, U.S. Fish and Wildlife Service, Golden Gate National Recreation Area, California Department of Fish and Game, Universities	Other: Information and Education	Internal Technical Assistance	Outreach to community occurring since 1994.
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	3	B 4.3	Promote native manzanita recovery through stewardship.	Ongoing Current	Prior to FY 1995		Local conservation/horticultural organizations [San Francisco Presidio], City of San Francisco Department of Parks and Recreation, U.S. Fish and Wildlife Service, Golden Gate National Recreation Area, Presidio Trust, California Department of Fish and Game	Other: Information and Education	Internal Technical Assistance	Outreach to community since 1994 includes stewardship.
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	3	B 4.4	Establish public demonstration gardens displaying cultivated Raven's manzanita clones.	Not Started			Local conservation/horticultural organizations [San Francisco Presidio], City of San Francisco Department of Parks and Recreation, U.S. Fish and Wildlife Service, Golden Gate National Recreation Area, Presidio Trust, California Department of Fish and Game	Other: Information and Education	Contract	

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	2	B 5.1	Search for "Raven's-like" Tamalpais manzanitas (Arctostaphylos montana).	Not Started			U.S. Fish and Wildlife Service, California Department of Fish and Game, Universities	Research	Contract	
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	2	B 5.2	Investigate seed production and propagation of Raven's manzanita.	Ongoing Current	FY 2007		U.S. Fish and Wildlife Service, California Department of Fish and Game, Universities	Research: Propagation	Graduate Student	UC Berkeley is researching hybridization of Presidio manzanita in botanical garden. Initiation date is unknown.
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	2	B 5.3	Investigate taxonomic status and relationships of Raven's manzanita.	Partially Complete	FY 2007		U.S. Fish and Wildlife Service, California Department of Fish and Game, Universities	Research: Genetics	Species Expert	Tom Parker doing genetic research 05-08. Prelim evidence shows at least some plants grown from seed collected in '07 and seedlings from open pollination at UC Berkeley are true to subspecies. Based on the genetic work of Markos et al (1999), Parker et al (2007) resurrected Arctostaphylos montana at species rank and made a new combination for subsp. ravenii.
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	2	B 5.4	investigate substrate and plant interactions with Raven's manzanita.	Not Started			U.S. Fish and Wildlife Service, California Department of Fish and Game, Universities	Research: Habitat Requirements	Contract	
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	2	B 5.5	investigate reproductive ecology of Raven's manzanita.	Partially Complete	FY 2008		U.S. Fish and Wildlife Service, California Department of Fish and Game, Universities	Research	Species Expert	FY '08: Prelim evidence from mother plant shows this species is capable of selfing.
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	1	B 5.6	Investigate practical specific nonnative vegetation control techniques at Raven's manzanita sites.	Partially Complete	FY 1995 - FY 1999		U.S. Fish and Wildlife Service, Golden Gate National Recreation Area, Presidio Trust, California Department of Fish and Game, Universities	Management: Habitat Maintenance and Manipulation	Contract	

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	2	B 5.7	Assemble a scientific review panel to evaluate and recommend a genetic management plan for Raven's manzanita	Ongoing Current			Private Consultant/Contractor [San Francisco Presidio management], U.S. Fish and Wildlife Service, Golden Gate National Recreation Area, Presidio Trust, California Department of Fish and Game, Universities	Management: Propagation	Contract	
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	3	B 6.1	Collect and store seed of Raven's manzanita	Ongoing Current	FY 2007		Local conservation/horticultural organizations [San Francisco Presidio], Golden Gate National Recreation Area, Presidio Trust, Universities	Management: Propagation	Graduate Student	Seed is being collected at UC Berkeley botanical garden. Initiation date is a guess.
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	3	B 6.2	Cultivate Raven's manzanita in botanical gardens	Ongoing Current	FY 1995 - FY 1999		Local conservation/horticultural organizations [San Francisco Presidio], U.S. Fish and Wildlife Service, California Department of Fish and Game, Universities	Management: Propagation	Contract	UC Berkeley botanical garden.
Presidio Manzanita (Arctostaphylos hookeri var. ravenii)	3	B 6.3	Promote and authorize appropriate informational and outreach use of Raven's manzanita.	Not Started			Local conservation/horticultural organizations [San Francisco Presidio], City of San Francisco Department of Parks and Recreation, U.S. Fish and Wildlife Service, California Department of Fish and Game	Other: Information and Education	Contract	